

Please **AMEND** the CLAIMS as follows:

1. (Currently Amended) In a network device, a method of performing Network Address Translation, comprising:

maintaining a plurality of routing tables, each of a plurality of virtual private networks being associated with a different one of the plurality of routing tables;

receiving a packet, the packet including an IP source address and an IP destination address, the packet further including information indicating one of the plurality of routing tables to route the packet, the information identifying one of the plurality of virtual private networks;

performing Network Address Translation on the packet;

identifying one of the plurality of routing tables to route the packet using the information indicating one of the plurality of routing tables to route the packet such that one of the plurality of routing tables corresponding to the one of the plurality of virtual private networks is identified;

identifying an entry in the identified one of the plurality of routing tables using the IP destination address;

routing the packet using the identified routing table entry;

receiving a default route to a network device providing one or more shared services, the default route to the network device providing one or more shared services being advertised by the network device providing one or more shared services, wherein each of the shared services is available to each of the plurality of virtual private networks; and

updating each of the plurality of routing tables to include the default route, thereby enabling the plurality of virtual private networks to access the shared services via the default route that is included in each of the plurality of routing tables.

2. (Previously Presented) The method as recited in claim 1, wherein each of the plurality of virtual private networks is associated with a different customer.

3. (Original) The method as recited in claim 1, wherein the network device is associated with an ingress interface of a service provider network.

4. (Original) The method as recited in claim 1, wherein the network device is associated with an egress interface of a service provider network.

5. (Original) The method as recited in claim 1, wherein the network device is associated with a service provider network.

6. (Previously Presented) The method as recited in claim 1, wherein performing Network Address Translation on the packet comprises:

translating the IP source address from a private address to a public address when the packet is received from a network device in a private network.

7. (Previously Presented) The method as recited in claim 1, wherein performing Network Address Translation on the packet comprises:

translating the IP destination address from a public address to a private address when the packet is received from a network device in a public network.

8. (Previously Presented) The method as recited in claim 7, wherein the network

device in the public network provides one or more services to each of the plurality of virtual private networks.

9. (Cancelled)

10. (Currently Amended) The method as recited in claim 1, wherein the packet includes an MPLS tag identifying the one of the plurality of virtual private networks ~~indicating a virtual private network~~, and wherein identifying one of the plurality of routing tables comprises:

ascertaining the ~~virtual private network~~ one of the plurality of virtual private networks from the Multi Protocol Label Switching tag; and

identifying the one of the plurality of routing tables associated with the ascertained one of the virtual private networks ~~virtual private network~~.

11. (Previously Presented) The method as recited in claim 10, wherein the Multi Protocol Label Switching tag further identifies the network device responsible for performing Network Address Translation and routing the packet.

12. (Currently Amended) In a network device, a method of performing Network Address Translation, comprising:

maintaining a plurality of routing tables, each of a plurality of virtual private networks being associated with a different one of the plurality of routing tables;

receiving a packet, the packet including an IP source address and an IP destination address, the packet further including information indicating one of the plurality of routing

tables to route the packet, the information identifying one of the plurality of virtual private networks;

performing Network Address Translation on the packet;

identifying one of the plurality of routing tables to route the packet using the information indicating one of the plurality of routing tables to route the packet such that one of the plurality of routing tables corresponding to the one of the plurality of virtual private networks is identified;

identifying an entry in the identified one of the plurality of routing tables using the IP destination address; and

routing the packet using the identified routing table entry;

wherein the packet further includes an Multi Protocol Label Switching tag identifying the one of the plurality of virtual private networks ~~indicating a virtual private network~~, and wherein performing Network Address Translation on the packet comprises:

ascertaining the ~~virtual private network~~ one of the plurality of virtual private networks from the Multi Protocol Label Switching tag;

identifying an entry in a translation table including the IP source address, the IP destination address, and a virtual private network identifier identifying the ascertained one of the virtual private networks ~~virtual private network~~; and

performing Network Address Translation on the packet using the entry in the translation table.

13. (Previously Presented) The method as recited in claim 12, wherein identifying one of the plurality of routing tables to route the packet comprises:

identifying the one of the plurality of routing tables from the entry in the translation

table.

14. (Currently Amended) In a network device, a method of performing Network Address Translation, comprising:

maintaining a plurality of sets of routing information, each of a plurality of virtual private networks being associated with a different one of the plurality of sets of routing information;

receiving a packet, the packet including an IP source address and an IP destination address, the packet further including information indicating one of the plurality of sets of routing information to route the packet, the information identifying one of the plurality of virtual private networks;

performing Network Address Translation on the packet;

identifying an entry in one of the plurality of sets of routing information using the IP destination address and the information indicating one of the plurality of sets of routing information to route the packet such that one of the plurality of sets of routing information corresponding to the one of the plurality of virtual private networks is identified;

routing the packet using the identified entry;

receiving a default route to a network device providing one or more shared services, the default route to the network device providing one or more shared services being advertised by the network device providing one or more shared services, wherein each of the shared services is available to each of the plurality of virtual private networks; and

updating the plurality of sets of routing information to include the default route, wherein each of the plurality of sets of routing information corresponding to each of the plurality of virtual private networks is stored in one or more routing tables, thereby updating

the one or more routing tables associated with the plurality of virtual private networks to include the default route to the network device providing one or more shared services available to each of the plurality of virtual private networks, enabling the plurality of virtual private networks to access the shared services via the default route that is included in each of the plurality of sets of routing information.

15. (Previously Presented) The method as recited in claim 14, wherein each of the plurality of sets of routing information corresponding to each of the plurality of virtual private networks is stored in a separate routing table.

16. (Previously Presented) The method as recited in claim 14, wherein each of the plurality of sets of routing information corresponding to each of the plurality of virtual private networks is stored in a single routing table, wherein each entry in the routing table includes a VPN identifier identifying the corresponding one of the plurality of virtual private networks.

17. (Cancelled)

18. (Previously Presented) The method as recited in claim 14, wherein updating the plurality of sets of routing information comprises:  
updating a single routing table to include the default route.

19. (Previously Presented) The method as recited in claim 18, wherein the single routing table is dedicated to storing the default route to shared services available to each of

the plurality of virtual private networks.

20. (Previously Presented) The method as recited in claim 18, wherein the single routing table stores the plurality of sets of routing information.

21. (Previously Presented) The method as recited in claim 14, wherein updating the plurality of sets of routing information comprises updating a plurality of routing tables to include the default route, each of the plurality of routing tables being associated with a different one of the plurality of virtual private networks.

22. (Currently Amended) A computer-readable medium storing thereon computer-readable instructions for performing Network Address Translation in a network device, comprising:

instructions for maintaining a plurality of routing tables, each of a plurality of virtual private networks being associated with a different one of the plurality of routing tables;

instructions for processing a packet that has been received, the packet including an IP source address and an IP destination address, the packet further including information indicating one of the plurality of routing tables to route the packet, the information identifying one of the plurality of virtual private networks;

instructions for performing Network Address Translation on the packet;

instructions for identifying one of the plurality of routing tables to route the packet using the information indicating one of the plurality of routing tables to route the packet such that one of the plurality of routing tables corresponding to the one of the plurality of virtual private networks is identified;

instructions for identifying an entry in the identified one of the plurality of routing tables using the IP destination address;

instructions for routing the packet using the identified routing table entry;

receiving a default route to a network device providing one or more shared services, the default route to the network device providing one or more shared services being advertised by the network device providing one or more shared services, wherein each of the shared services is available to each of the plurality of virtual private networks; and

instructions for updating each of the plurality of routing tables to include the default route, thereby enabling the plurality of virtual private networks to access the shared services via the default route that is included in each of the plurality of routing tables.

23. (Currently Amended) A network device adapted for performing Network Address Translation, comprising:

means for maintaining a plurality of routing tables, each of a plurality of virtual private networks being associated with a different one of the plurality of routing tables;

means for receiving a packet, the packet including an IP source address and an IP destination address, the packet further including information indicating one of the plurality of routing tables to route the packet, the information identifying one of the plurality of virtual private networks;

means for performing Network Address Translation on the packet;

means for identifying one of the plurality of routing tables to route the packet using the information indicating one of the plurality of routing tables to route the packet such that one of the plurality of routing tables corresponding to the one of the plurality of virtual private networks is identified;



means for identifying an entry in the identified one of the plurality of routing tables using the IP destination address;

means for routing the packet using the identified routing table entry;

means for receiving a default route to a network device providing one or more shared services, the default route to the network device providing one or more shared services being advertised by the network device providing one or more shared services, wherein each of the shared services is available to each of the plurality of virtual private networks; and

means for updating each of the plurality of routing tables to include the default route, thereby enabling the plurality of virtual private networks to access the shared services via the default route that is included in each of the plurality of routing tables.

24. (Currently Amended) A network device adapted for performing Network Address Translation, comprising:

a processor; and

a memory, at least one of the processor or the memory being adapted for:

maintaining a plurality of routing tables, each of a plurality of virtual private networks being associated with a different one of the plurality of routing tables;

receiving a packet, the packet including an IP source address and an IP destination address, the packet further including information indicating one of the plurality of routing tables to route the packet, the information identifying one of the plurality of virtual private networks;

performing Network Address Translation on the packet;

identifying one of the plurality of routing tables to route the packet using the information indicating one of the plurality of routing tables to route the packet such that one

of the plurality of routing tables corresponding to the one of the plurality of virtual private networks is identified;

identifying an entry in the identified one of the plurality of routing tables using the IP destination address;

routing the packet using the identified routing table entry;

receiving a default route to a network device providing one or more shared services, the default route to the network device providing one or more shared services being advertised by the network device providing one or more shared services, wherein each of the shared services is available to each of the plurality of virtual private networks; and

updating each of the plurality of routing tables to include the default route, thereby enabling the plurality of virtual private networks to access the shared services via the default route that is included in each of the plurality of routing tables.

25. (Currently Amended) An apparatus, comprising:

a processor; and

a memory, at least one of the processor or the memory being adapted for:

maintaining a plurality of routing tables, each of a plurality of virtual private networks being associated with a different one of the plurality of routing tables;

receiving a packet, the packet including an IP source address and an IP destination address, the packet further including information indicating one of the plurality of routing tables to route the packet, the information identifying one of the plurality of virtual private networks;

performing Network Address Translation on the packet;

identifying one of the plurality of routing tables to route the packet using the

information indicating one of the plurality of routing tables to route the packet such that one of the plurality of routing tables corresponding to the one of the plurality of virtual private networks is identified;

identifying an entry in the identified one of the plurality of routing tables using the IP destination address; and

routing the packet using the identified routing table entry;

wherein the packet further includes an Multi Protocol Label Switching tag identifying the one of the plurality of virtual private networks ~~indicating a virtual private network~~, and wherein performing Network Address Translation on the packet comprises:

ascertaining the one of the plurality of virtual private networks ~~virtual private network~~ from the Multi Protocol Label Switching tag;

identifying an entry in a translation table including the IP source address, the IP destination address, and a virtual private network identifier identifying the ascertained one of the virtual private networks ~~virtual private network~~; and

performing Network Address Translation on the packet using the entry in the translation table.

26. (Previously Presented) The apparatus as recited in claim 25, wherein identifying one of the plurality of routing tables to route the packet comprises:

identifying the one of the plurality of routing tables from the entry in the translation table.